## REMARKS

At the outset, the Examiner is thanked for the review and consideration of the pending application. The Non-Final Office Action dated April 4, 2008 has been received and its contents reviewed. Reconsideration of the pending application is respectfully requested in view of the following observations.

1. Amendments and Support for Same.

Claims 1 and 10 are hereby amended to improve upon readability and to further clarify the already claimed subject matter. No new matter is added. No claims are hereby cancelled and no claims are hereby newly added. Accordingly, claims 1-17 remain currently pending.

2. Claims 1-4 and 8 are rejected under 35 U.S.C. §103(a) as unpatentable over United States patent 5,938,334 (*Kayani*).

The rejection of claims 1-4 and 8 is respectfully traversed and reconsideration is requested.

Claims 1-4 and 8 are allowable over *Kayani* in that each of these claims recite a combination of steps including, for example, " ... the step of determining the limpness of the sheet material comprises forming a mathematical ratio of the reflected and the transmitted sound waves to determine the limpness."

*Kayani* does not teach or suggest at least this feature of the claimed invention.

*Kayani* is generally drawn to methods of measuring currency limpness. *Kayani*'s methods include testing for reflectivity or transmissivity of a worn note, the use of an acoustic source detector to measure the limpness of a note, the use of air pressure to deflect a portion of a note in order to determine the limpness of the note, placing a note in between plates of a capacitor to determine the dielectric value of the note in order to then determine limpness and a method of heating a note and measuring the note's heat capacity to determine limpness (Col. 2, Lines 15-35)(referring to Figures 1a, 1b and 2-6).

*Kayani* also teaches that a combination of these tests or methods could be performed on more than one area of a note in order to account for variations across the surface of the note (Col. 4, Lines 20-25).

*Kayani* Figure 2 shows a light beam (14) incident upon a note (10). Part of the light is reflected (16) and part of the light is transmitted (18). A detector (20) measures the reflected light (16) and another detector (22) measures the transmitted light (18). Depending upon whether reflected light is to be measured or transmitted light is to be measured, ultraviolet or infrared light is used (Col. 3, Lines 5-10). *Kayani* goes on to teach that a limp note will tend to scatter more light than a crisp note and a limp note will allow more infrared light to pass (Col. 3, Lines 10-20). Depending on the type of light source used, this affects the relative signal from the relevant detector (Id.).

*Kayani* Figure 3 teaches the use of an acoustic source (24) that outputs an acoustic wave (26) upon a note (10). Figure 3 is similar to the technique and science of *Kayani*'s Figure 2, in that part of the sound wave is reflected (26) and part of the sound wave is transmitted (28). *Kayani* states that limp notes (as compared with new, crisp notes) tend to absorb more energy from the acoustic wave resulting in lower relative output from the acoustic detector (30).

Figure 4 of *Kayani* teaches the application of air pressure (36) via an air pressure source (34) upon a cantilevered portion of a note (10b). The teaching in this Figure is that a limp note will deflect further than a stiff note (Col. 3, Lines 35-40).

*Kayani* Figure 5 teaches the placement of a note (10) between plates of a capacitor (38 and 40) to determine the value of the capacitance as a function of broken fibers of the note and thus the relative capacitor value can be correlated to the limpness of the note (Id. Lines 50-60).

The final teaching of *Kayani* involves the application of heat upon the note (Figure 6, thermal source 42 and thermal detector 44) in order to determine the note's ability to dissipate heat (Id. Lines 59-67).

While all of these methods involve steps of determining a limp note from a stiff or crisp note, **none** of these steps disclose, teach, or fairly suggest to the skilled artisan **anything** about forming a mathematical ratio of the reflected and the transmitted sound waves to determine the limpness of a note.

In rejecting claim 1, the Examiner states, "Kayani does not particularly teach forming a mathematical ratio of the reflected and transmitted sound waves (Office Action at page 3)." Notwithstanding the deficiencies of *Kayani*, the Examiner states,

"[h]owever, it would have been obvious to one of the ordinary skill in the art to take the ratio of Kayani's reflected signal and the transmitted or absorbed signal in determining the limpness of the note. The ordinary skilled artisan would have known that taking the ratio of different measurements for the note is a well known approach for evaluating the strength of the different portions of the signal to determine the limpness of the note [in] a reliable manner (Id.)."

Applicant respectfully asserts that it would not be obvious to one of ordinary skill in the art to modify *Kayani* as the Examiner argues.

The claimed invention requires an evaluation unit to aid in the determination of the claimed mathematical ratio. *Kayani* does not have such an evaluation unit. Thus, there would be no way to determine the claimed mathematical ratio even if, *argunedo*, the ordinary skilled artisan would think it obvious to take the ratio of different measurements for a note as a "well known approach" for evaluating the strength of the different portions of a signal to determine the limpness of the note.

Furthermore, *Kayani* actually teaches away from the claimed invention because *Kayani* clearly indicates that, " ... [i]f reflected light is to be the measure, an ultraviolet light source is preferred. If transmitted light is the measure, then an infrared source is preferred (Col. 3, Lines 5-10). This suggests that one or the other (reflected or transmitted light) is measured but not necessarily both.

In addition, Applicant seasonably traverses what appears to Applicant to be the Examiner's taking of Official Notice.

The Examiner asserts that, "[t]he ordinary skilled artisan would have known that taking the ratio of different measurements for the note is a well known approach for evaluating the strength of the different portions of the signal to determine the limpness of the note [in] a reliable manner (emphasis added)."

First, Applicant is not just taking the ratio of different measurements of a note for evaluating signal strength of different portions of a signal. As claimed, Applicant is calculating the ratio of reflected and transmitted sound waves. This is not quite the same as taking the ratio of different measurements of a note for evaluating signal strength of different portions of a signal.

Second, if the Examiner maintains the Examiner's taking of what appears to Applicant to be Official Notice, the Examiner is requested to provide documentary evidence to support and prove the Examiner's assertions.

Applicant submits that the Examiner has not met the Examiner's burden of establishing and proving *prima facie* obviousness.

Accordingly, at least for all of the above reasons, claims 1-4 and 8 are believed to be allowable over *Kayani*. Withdrawal of the rejection of claims 1-4 and 8 is respectfully requested.

3. Claims 5, 10-12 and 14 are rejected under 35 U.S.C. §103(a) as unpatentable over *Kayani* in view of United States patent 6,745,628 B2 (*Wunderer*).

The rejection of claim 5 is respectfully traversed and reconsideration is requested.

Claim 5 depends from claim 1 and thus necessarily contains all of the limitations of claim 1. Accordingly, at least for all of the reasons given in regard to claim 1, claim 5 is believed to be allowable over *Kayani*. Withdrawal of the rejection of claim 5 is respectfully requested.

The rejection of claims 10-12 and 14 is respectfully traversed and reconsideration is requested.

Claims 10-12 and 14 are believed to be allowable over the combination of references in that each of these claims recite a combination of elements including, for example, " ... the measuring device comprising both a reflection sensor for measuring the sound waves reflected by the sheet material and a transmission sensor for measuring the sound waves transmitted through the sheet material; an evaluation unit for determining the limpness of the sheet material on the basis of the sound waves captured by the measuring device, the evaluation unit being arranged to form a mathematical ratio of the reflected and transmitted sound waves measured and to use said mathematical ratio to determine the limpness." None of the cited references, singly or in combination, teach or disclose at least the above claimed features.

In rejecting claims 10-12 and 14, the Examiner recognizes the deficiencies of *Kayani* and introduces *Wunderer* in an attempt to remedy the deficiencies of *Kayani*.

The Examiner states that, "Wunderer depicts an evaluation unit 10 in Fig. 1 (Office Action at page 5)."

The Examiner is correct that *Wunderer* depicts an evaluation device (10) of Figure 1. However, the evaluation device is part of the controller (9) and the evaluation device (10) accepts data from receiver control (8) and evaluates them (Col. 4, Lines 45-55)." There is no indication that the evaluation device performs the claimed function of forming a mathematical ratio of reflected and transmitted sound waves. It is noted that *Wunderer* teaches a receiving device that measures ultrasonic waves separately for two frequencies (Col. 5, Lines 20-30). However, these frequencies seem to relate to transmission values only. *See, e.g.,* Column 5.

Because neither *Kayani* nor *Wunderer* teach or suggest all of the claimed limitations and thus cannot render the claimed invention obvious, Applicant asserts that the Examiner has not met the Examiner's burden of establishing and proving *prima facie* obviousness.

Furthermore, *Wunderer*, as noted, does not remedy the deficiencies of *Kayani*. Considering the combination of *Kayani* and *Wunderer*, these references together do not render the claimed invention *prima facie* obvious.

Accordingly, at least for all of the reasons given, claims 10-12 and 14 are believed to be allowable over *Kayani* and *Wunderer*. Withdrawal of the rejection of claims 10-12 and 14 is respectfully requested.

4. Claims 6-7 and 13 are rejected under 35 U.S.C. §103(a) as unpatentable over *Kayani* in view of United States patent 4,976,150 (*Deka*).

The rejection of claims 6-7 is respectfully traversed and reconsideration is requested.

Claims 6 and 7 depend either directly or indirectly from claim 1 and thus necessarily contain all of the limitations of claim 1. Claim 13 depends from claim 10 and thus necessarily contains all of the limitations of claim 10. Accordingly, at least for all of the reasons given in regard to claims 1 and 10, claims 6-7 and 13 are believed to be allowable over the cited references. Withdrawal of the rejection of claims 6-7 and 13 is respectfully requested.

Furthermore, *Deka* is drawn to an ultrasonic transducer involving matching transducer impedance to that of air. *Deka* does not remedy the deficiencies of *Kayani*.

Accordingly, at least for all of the reasons given, claims 6-7 and 13 are believed to be allowable over *Kayani* and *Deka*. Withdrawal of the rejection of claims 6-7 and 13 is respectfully requested.

5. Claims 9 and 15 are rejected under 35 U.S.C. §103(a) as unpatentable over *Kayani* in view of United States patent 6,424,597 B1 (*Bolomey*).

The rejection of claims 9 and 15 is respectfully traversed and reconsideration is requested.

Claims 9 and 15 depend from claim 1 and claim 10, respectively, and thus necessarily contain all of the limitations of their respective claims. Accordingly, at least for all of the reasons given in regard to claims 1 and 10, claims 9 and 15 are believed to be allowable over the cited references. Withdrawal of the rejection of claims 9 and 15 is respectfully requested.

Furthermore, *Bolomey* is drawn to multi-elements ultrasonic contact transducer in the context of medical arts and particularly mechanical parts with a complex shape or irregular surface condition, for example due to grinding (Col. 1, Lines 5-15). *Bolomey* does not remedy the deficiencies of *Kayani*.

Accordingly, at least for all of the reasons given, claims 9 and 15 are believed to be allowable over *Kayani* and *Bolomey*. Withdrawal of the rejection of claims 9 and 15 is respectfully requested.

6. Claims 16 and 17 are rejected under 35 U.S.C. §103(a) as unpatentable over *Kayani* in view of United States patent 4,612,807 (*Wunderer*).

The rejection of claims 16 and 17 is respectfully traversed and reconsideration is requested.

Claims 16 and 17 depend from claims 1 and claim 14, respectively, and thus necessarily contain all of the limitations of their respective base claims. Accordingly, at least for all of the reasons given in regard to claims 1 and 10, claims 16 and 17 are believed to be allowable over the cited references. Withdrawal of the rejection of claims 16 and 17 is respectfully requested.

Furthermore, *Wunderer* is drawn to an apparatus for determining the weight per unit area of sheet-like material. *Wunderer* does not remedy the deficiencies of *Kayani*.

Accordingly, at least for all of the reasons given, claims 16 and 17 are believed to be allowable over *Kayani* and *Wunderer*. Withdrawal of the rejection of claims 16 and 17 is respectfully requested.

7. Conclusion.

As a result of the amendment to the claims, and further in view of the foregoing remarks, it is respectfully submitted that the application is in condition for allowance. Accordingly, it is respectfully requested that every pending claim in the present application be allowed and the application be passed to issue.

If any issues remain that may be resolved by a telephone or facsimile communication with the Applicant's attorney, the Examiner is invited to contact the undersigned at the numbers shown below.

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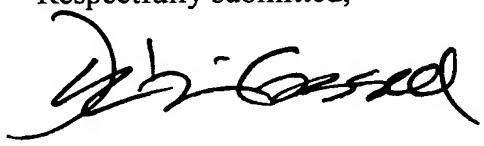

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